WHAT IS CLAIMED IS:

1. An ultraviolet detector, comprised of a baseplate, a buffer layer, and a P-type GaN layer, in which the P-type GaN layer envelops a first N-type GaN layer extended to the top end thereof; the first N-type GaN layer further envelops a second N-type GaN layer also extended to the same top end which is capable of releasing much more electrons; an annular and another metallic layer are formed on the top end in an annular zone between the P-type and the first N-type GaN layer and in a circular zone inside the second N-type metallic layer to form a P-type ohmic contact electrode as well as an N-type ohmic contact electrode respectively.

2. A method for manufacturing ultraviolet detector, comprising the following steps:
   (1) forming a buffer layer on an insulating baseplate by using an epitaxial method;
   (2) forming a P-type GaN layer on the buffer layer by using an epitaxial method;
   (3) distributing and vegetating Si^+ ions in the P-type GaN layer completed in foregoing step to form a first N-type GaN layer extending from top end of the P-type GaN layer deep into inside to a predetermined extent to form an optimum scope by way of using ion-distribution-and-vegetation technology and adopting optimum photomasks as well as control of depth and range of distributed and vegetated ions;
   (4) distributing and vegetating Si^+ ions in the N-type GaN layer completed in foregoing step to form a second N-type GaN layer capable of releasing much more electrons and extending from top end of the first N-type GaN layer deep into inside to a predetermined extent to form an optimum scope by way of using ion-distribution-and-vegetation technology and adopting optimum photomasks as well as control of depth and range of distributed and vegetated ions;
   (5) putting foregoing semi-finished product into a high-temperature furnace for annealing in order to activate the distributed and vegetated ions; and
   (6) plating an annular and another metallic layer on the P-type GaN layer as well as the second N-type GaN layer, respectively.

3. The method for manufacturing ultraviolet detector according to Claim **2**, wherein the baseplate is made of an insulating material selected from a group consisting of Si, SiC, GaP, GaAs, GaN and Al_2O_3.

4. The method for manufacturing ultraviolet detector according to Claim **2**, wherein the epitaxial method is any of metal organic chemical vapor deposition (MOCVD), molecular beam epitaxy, vapor phase epitaxy (VPE), or liquid phase epitaxy (LPE).

5. The method for manufacturing ultraviolet detector according to Claim **2**, wherein the P-type GaN layer is formed by P-type material in form of $Al_xGa_yIn_{(1-x-y)}N$, where $x \geqq 0$, $y \geqq 0$, $1 \geqq x+y \leqq 0$.

6. The method for manufacturing ultraviolet detector according to Claim **2**, wherein the first N-type GaN layer is formed by distributing and vegetating O^{2-} or S^{2-} ions to the P-type GaN layer.

7. The method for manufacturing ultraviolet detector according to Claim **2**, wherein the second N-type GaN layer is formed by distributing and vegetating O^{2-} or S^{2-} ions to the first N-type GaN layer.

8. The method for manufacturing ultraviolet detector according to Claim **2**, wherein the metallic layers are formed by Ti, Al, Pt, Au.